

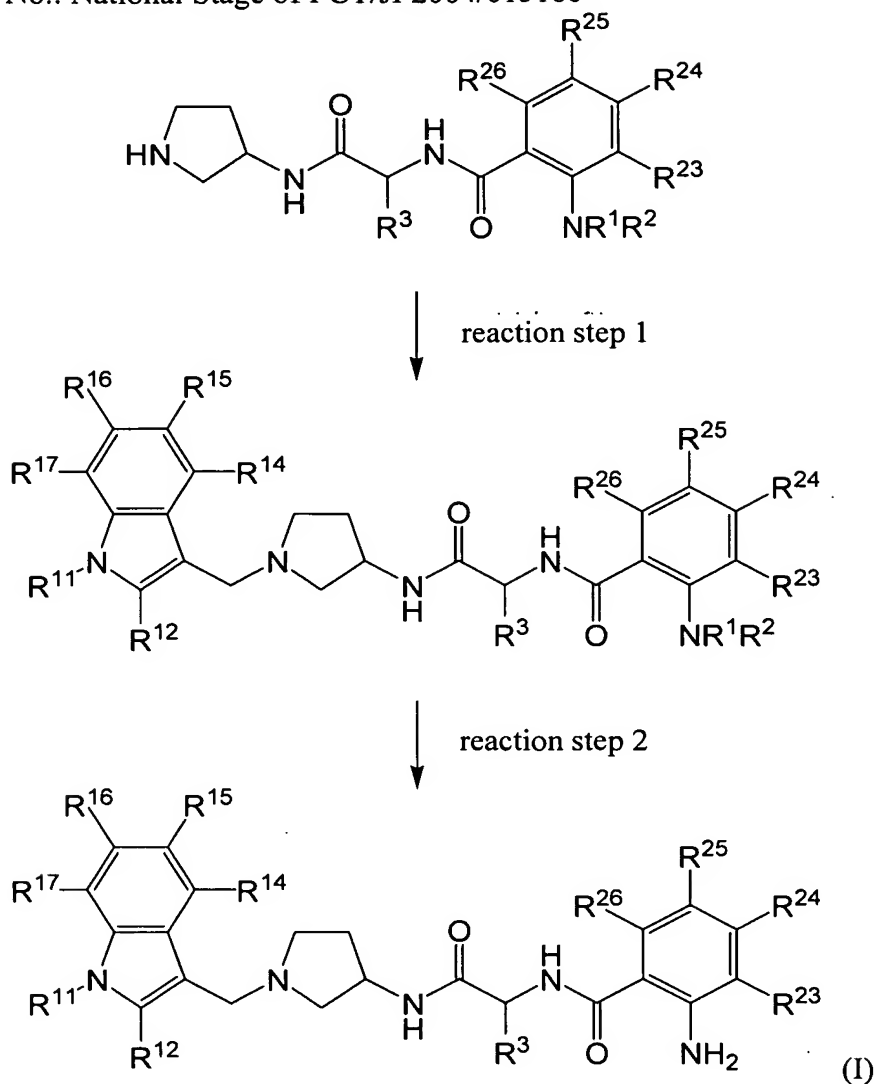
Preliminary Amendment
Appln. No.: National Stage of PCT/JP2004/015186

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (original): A producing method for aminopyrrolidine derivatives or salts thereof comprising reaction steps 1 and 2 represented by the following reaction formula (I) with the proviso that reaction step 2 is unnecessary if both R¹ and R² are hydrogen:



wherein R^1 and R^2 represent independently hydrogen or a protecting group for amino group
 (wherein R^1 and R^2 may, taken together, form a cyclic structure);

R^3 represents hydrogen or C_1 – C_6 alkyl;

R^{11} represents hydrogen, C_1 – C_6 alkyl or C_2 – C_7 alkanoyl;

R^{12} , R^{14} , R^{15} , R^{16} and R^{17} represent independently hydrogen, halogen, optionally halogenated
 C_1 – C_6 alkyl, optionally halogenated C_1 – C_6 alkoxy, hydroxyl or C_2 – C_7 alkoxy carbonyl; and R^{23} ,

R^{24} , R^{25} and R^{26} represent independently hydrogen, halogen, optionally halogenated C_1-C_6 alkyl, optionally halogenated C_1-C_6 alkoxy or hydroxyl.

2. (original): The production method according to claim 1, wherein the protecting group for amino group as R^1 or R^2 is methoxycarbonyl, *t*-butoxycarbonyl, benzyloxycarbonyl, allyloxycarbonyl, formyl, acetyl, benzoyl, methyl, ethyl, allyl, benzenesulfonyl or phthaloyl, wherein, when said protecting group for amino group contains an aromatic ring, the aromatic ring may be optionally substituted with one or more of nitro, amino, C_1-C_6 alkyl, C_1-C_6 alkoxy or halogen.

3. (original): The production method according to claim 1, wherein either of R^1 and R^2 is hydrogen and the other is *t*-butoxycarbonyl.

4. (currently amended): The production method according to claim 1 ~~any one of claims 1 to 3~~, wherein reaction step 1 is reaction of an indole derivative having no substituent at the 3-position in the presence of a synthon of formaldehyde.

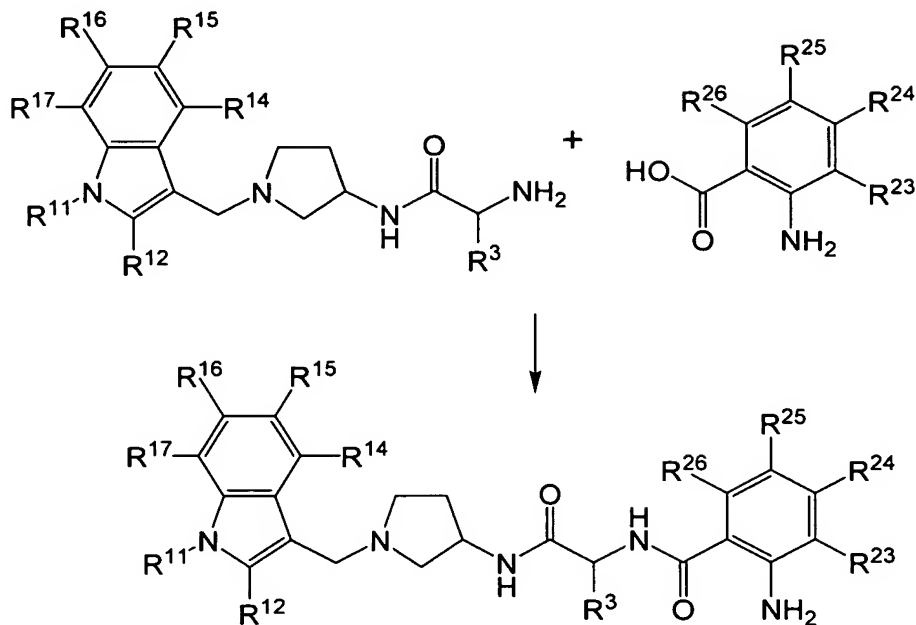
5. (original): The production method according to claim 4, wherein the synthon of formaldehyde is one or more of a compound selected from formalin, paraformaldehyde and trioxane.

6. (currently amended): The production method according to claim 1 ~~any one of claims 1 to 3~~, wherein reaction step 1 is reaction of an indole derivative having a dialkylaminomethyl group at the 3-position.

7. (currently amended): The production method according to claim 1 ~~any one of claims 1 to 6~~, wherein reaction step 2 is removal of the protection group for the amino group by acid hydrolysis.

8. (currently amended): The production method according to claim 1 ~~any one of claims 1 to 6~~, wherein reaction step 2 involves treatment with hydrogen chloride in organic solvent.

9. (original): A method for producing aminopyrrolidine derivatives or salts thereof comprising a condensation step represented by the following reaction formula (II), wherein the condensation step is performed by treatment with an anthranilic acid derivative in an aprotic solvent in the presence of a condensing agent:



(II)

wherein R^3 represents hydrogen or C_1 – C_6 alkyl;

R^{11} represents hydrogen, C_1 – C_6 alkyl or C_2 – C_7 alkanoyl;

R^{12} , R^{14} , R^{15} , R^{16} and R^{17} represent independently hydrogen, halogen, optionally halogenated C_1 – C_6 alkyl, optionally halogenated C_1 – C_6 alkoxy, hydroxyl or C_2 – C_7 alkoxy carbonyl; and

R^{23} , R^{24} , R^{25} and R^{26} represent independently hydrogen, halogen, optionally halogenated C_1 – C_6 alkyl, optionally halogenated C_1 – C_6 alkoxy or hydroxyl.

10. (original): The production method according to claim 9, wherein the condensing agent is one or more of a compound selected from 1,3-dicyclohexylcarbodiimide, isobutyl chloroformate, pivaloyl chloride, isovaleryl chloride, 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide, 1-cyclohexyl-3-morpholinoethylcarbodiimide, 1-cyclohexyl-3-(4-diethylaminocyclohexyl)carboximide, *N,N'*-carbonyldiimidazole and

2-chloro-1,3-dimethylimidazolinium chloride.

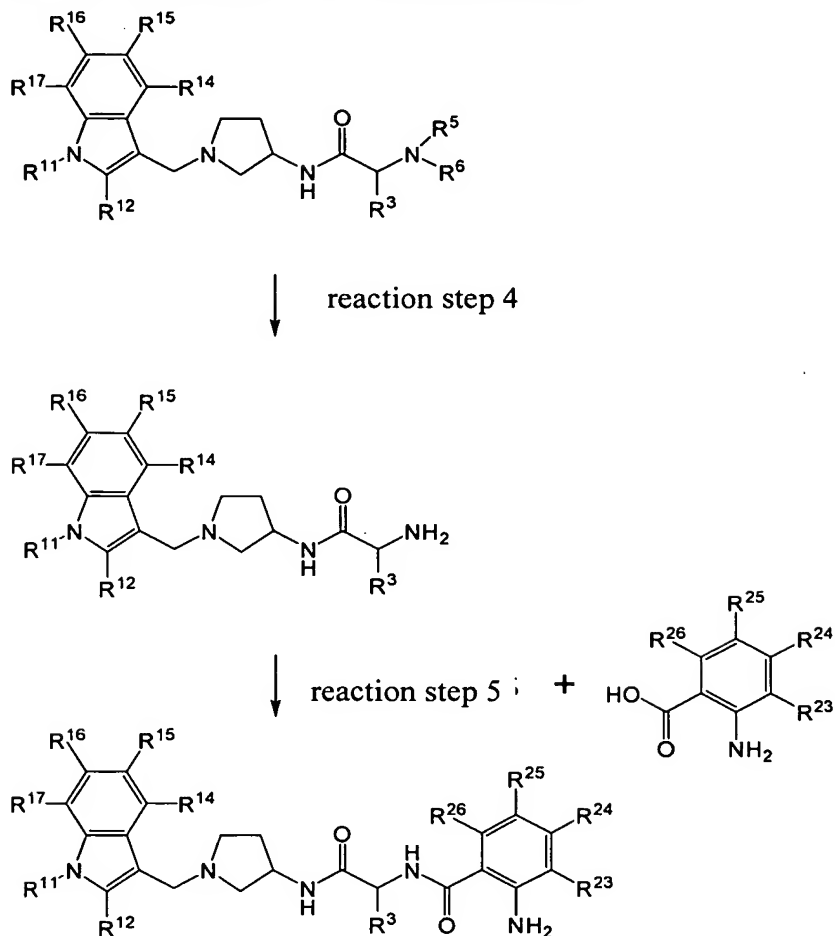
11. (original): The production method according to claim 9, wherein the condensing agent is 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride.

12. (currently amended): The production method according to claim 9~~any one of claims 9 to 11~~, wherein, in said condensation step, are additionally used one or more of an additive selected from *p*-nitrophenol, hydroxysuccinimide, hydroxyphthalimide, 1-hydroxy-1,2,3-benzotriazole, 3-hydroxy-4-oxo-3,4-dihydro-1,2,3-benzotriazine, *N*-hydroxy-5-norbornene-2,3-dicarboximide and ethyl 2-hydroxyimino-2-cyanoacetate.

13. (currently amended): The production method according to claim 9~~any one of claims 9 to 11~~, wherein, in said condensation step, 1-hydroxy-1,2,3-benzotriazole is additionally used as an additive.

14. (currently amended): The production method according to claim 9~~any one of claims 9 to 13~~, wherein, in said condensation step, triethylamine is additionally used.

15. (currently amended): The production method according to claim 9~~any one of claims 9 to 14~~, which further comprises a deprotection step represented by the following reaction step 4:

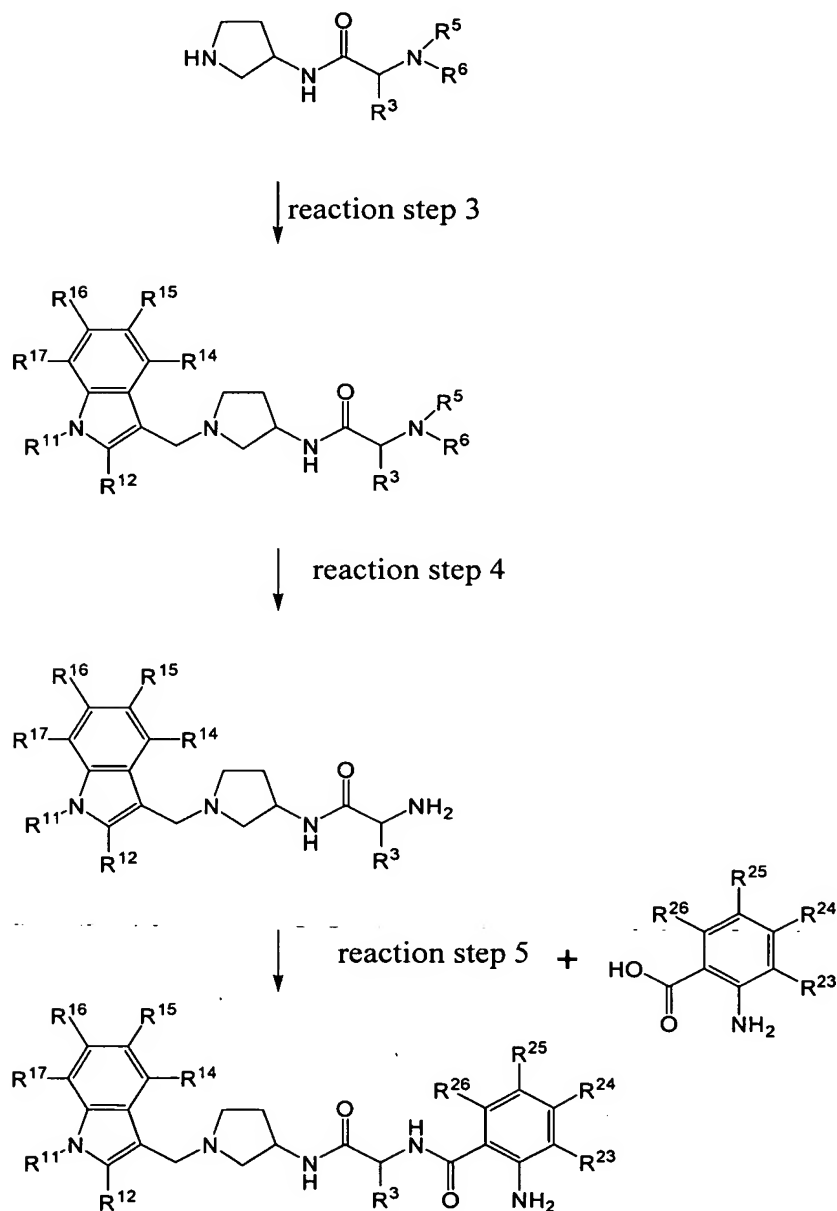


wherein R^3 , R^{11} , R^{12} , R^{14} , R^{15} , R^{16} , R^{17} , R^{23} , R^{24} , R^{25} and R^{26} are as defined in reaction formula (II);

R^5 and R^6 represent independently hydrogen or a protecting group for amino group (wherein R^5 and R^6 may, taken together, form a cyclic structure) except for the case where R^5 and R^6 are simultaneously hydrogen.

16. (original): The production method according to claim 15, wherein said reaction step 4 involves treatment with hydrogen chloride in organic solvent.

17. (currently amended): The production method according to ~~either~~ claim 15 ~~or~~ 16, which further comprises an introduction step of an indole derivative represented by the following reaction step 3:



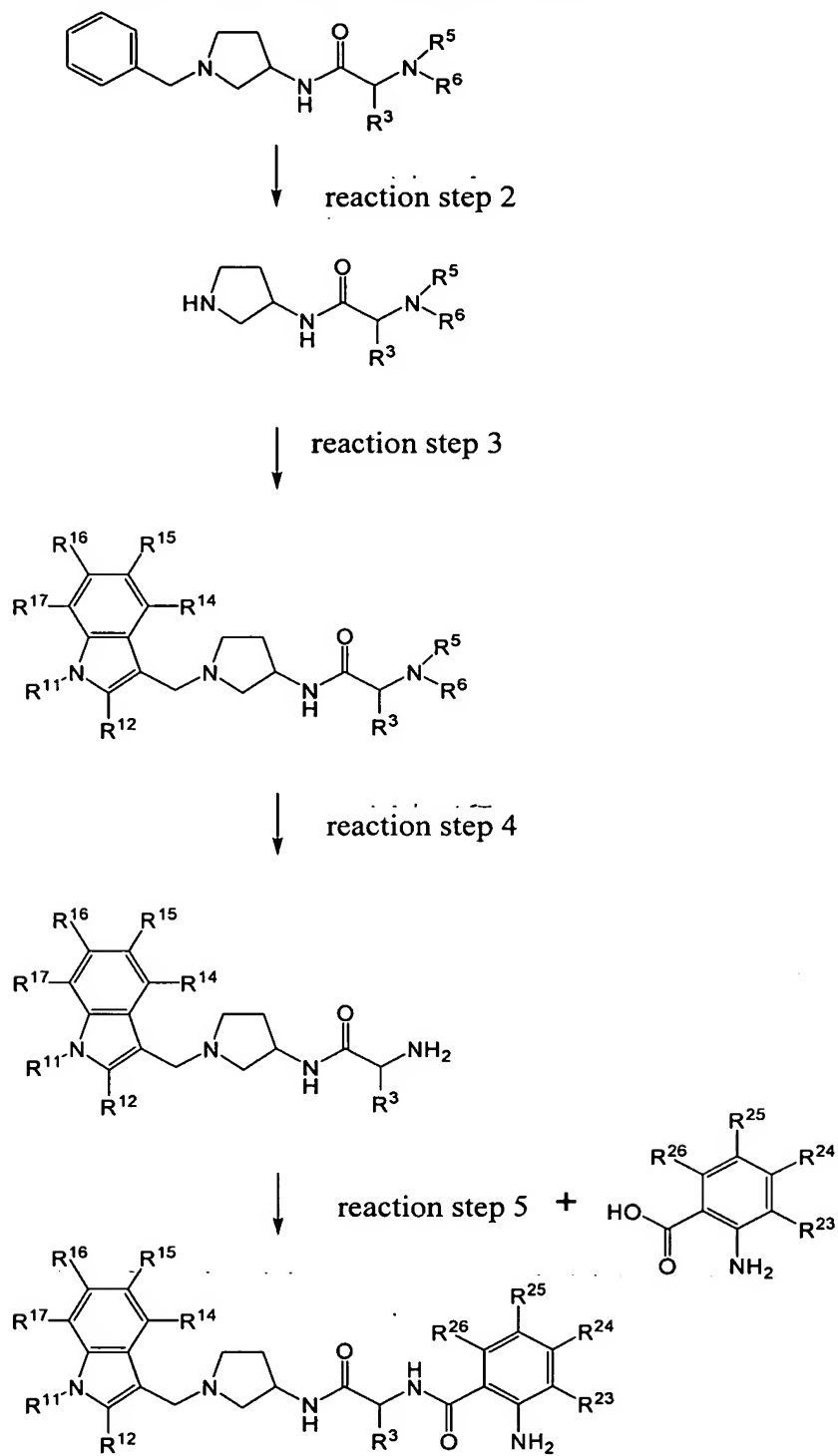
wherein R^3 , R^5 , R^6 , R^{11} , R^{12} , R^{14} , R^{15} , R^{16} , R^{17} , R^{23} , R^{24} , R^{25} and R^{26} are as defined above.

18. (original): The production method according to claim 17, wherein said reaction step 3 is reaction of an indole derivative having no substituent at the 3-position in the presence of a synthon of formaldehyde.

19. (original): The production method according to claim 18, wherein the synthon of formaldehyde is formalin.

20. (original): The production method according to claim 17, wherein said reaction step 3 is reaction of an indole derivative substituted with a dialkylaminomethyl group at the 3-position.

21. (currently amended): The production method according to claim 17~~any one of claims 17 to 20~~, which further comprises a removal step of a benzyl group represented by the following reaction step 2:

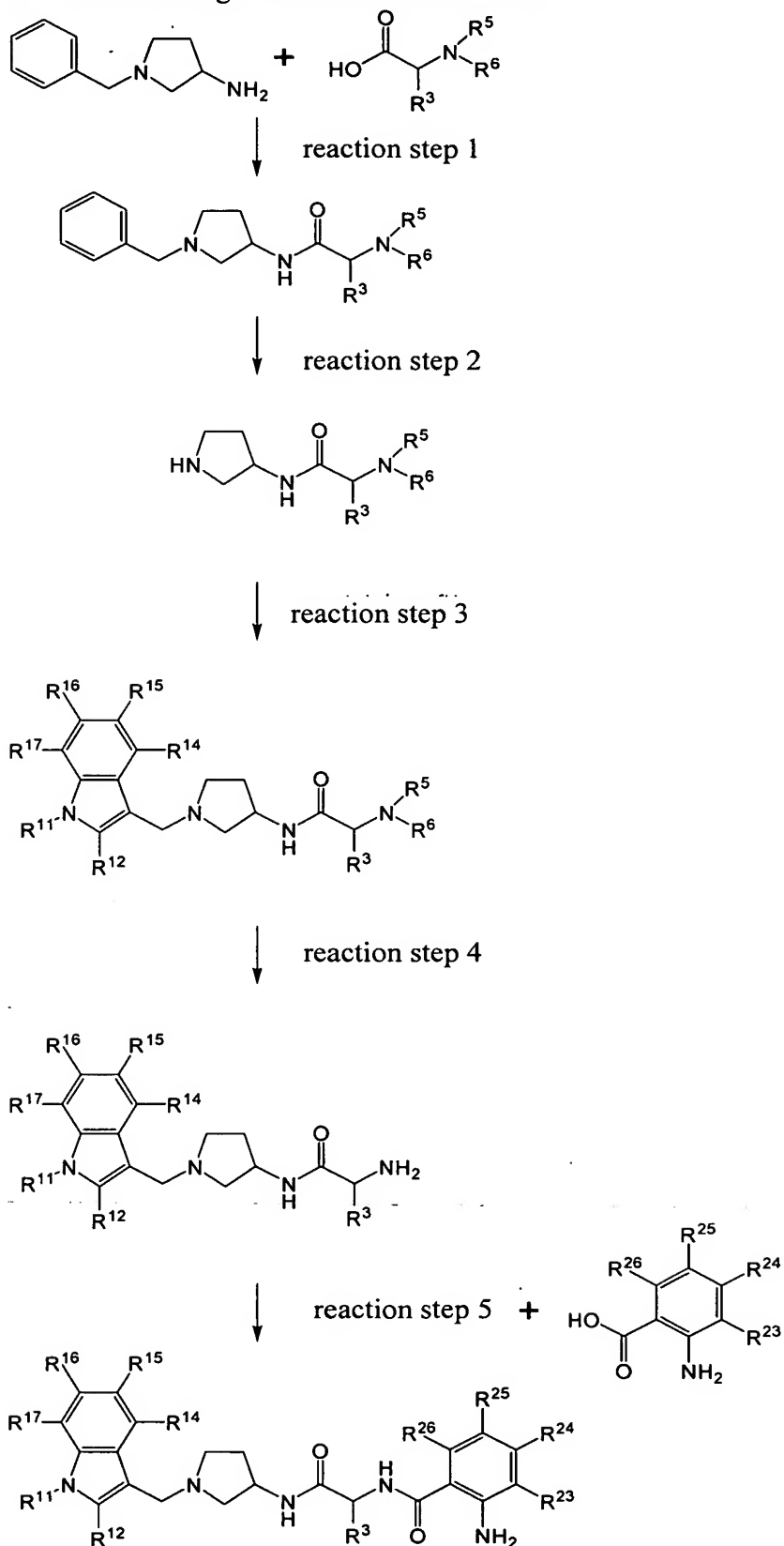


wherein R^3 , R^5 , R^6 , R^{11} , R^{12} , R^{14} , R^{15} , R^{16} , R^{17} , R^{23} , R^{24} , R^{25} and R^{26} are as defined above.

22. (original): The production method according to claim 21, wherein, in said reaction step 2, a hydrogen source is used in the presence of palladium catalyst.

23. (original): The production method according to claim 22, wherein the hydrogen source is gaseous hydrogen.

24. (currently amended): The production method according to claim 21~~any one of claims 21 to 23~~, which further comprises a condensation step with an amino acid derivative represented by the following reaction step 1:



wherein R^3 , R^5 , R^6 , R^{11} , R^{12} , R^{14} , R^{15} , R^{16} , R^{17} , R^{23} , R^{24} , R^{25} and R^{26} are as defined above.

25. (original): The production method according to claim 24, wherein, in said reaction step 1, are used one or more of a condensing agent selected from 1,3-dicyclohexylcarbodiimide, isobutyl chloroformate, pivaloyl chloride, isovaleryl chloride, 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide, 1-cyclohexyl-3-morpholinoethylcarbodiimide, 1-cyclohexyl-3-(4-diethylaminocyclohexyl)carboximide, *N,N'*-carbonyldiimidazole and 2-chloro-1,3-dimethylimidazolinium chloride.

26. (original): The production method according to claim 24, wherein, in said reaction step 1, 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide is used as a condensing agent.

27. (currently amended): The production method according to claim 24~~any one of claims 24 to 26~~, wherein, in said reaction step 1, are additionally used one or more of an additive selected from *p*-nitrophenol, hydroxysuccinimide, hydroxyphthalimide, 1-hydroxy-1,2,3-benzotriazole, 3-hydroxy-4-oxo-3,4-dihydro-1,2,3-benzotriazine, *N*-hydroxy-5-norbornene-2,3-dicarboximide and ethyl 2-hydroxyimino-2-cyanoacetate.

28. (currently amended): The production method according to claim 24~~any one of claims 24 to 26~~, wherein, in said reaction step 1, 1-hydroxy-1,2,3-benzotriazole is additionally used as an additive.

29. (currently amended): The production method according to claim 24~~any one of claims 24 to 28~~, wherein, in said reaction step 1, triethylamine is additionally used.

30. (currently amended): The production method according to claim 15~~any one of claims 15 to 29~~, wherein the protecting group for amino group as R⁵ and R⁶ is methoxycarbonyl, *t*-butoxycarbonyl, benzyloxycarbonyl, allyloxycarbonyl, formyl, acetyl, benzoyl, methyl, ethyl, allyl, benzenesulfonyl or phthaloyl, wherein, when said protecting group for the amino group contains an aromatic ring, the aromatic ring may be optionally substituted with one or more of nitro, amino, C₁–C₆ alkyl, C₁–C₆ alkoxy or halogen.

31. (currently amended): The production method according to claim 15~~any one of claims 15 to 29~~, wherein either of R⁵ and R⁶ is hydrogen and the other is *t*-butoxycarbonyl.

32. (currently amended): The production method according to claim 1~~any one of claims 1 to 31~~, wherein R³ is hydrogen.

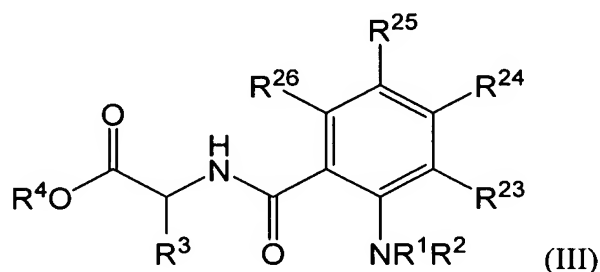
33. (currently amended): The production method according to claim 1~~any one of claims 1 to 32~~, wherein R¹¹, R¹², R¹⁴, R¹⁵ and R¹⁷ are all hydrogen.

34. (currently amended): The production method according to claim 1~~any one of claims 1 to 33~~, wherein R¹⁶ is methyl.

35. (currently amended): The production method according to claim 1 ~~any one of claims 1 to 34~~, wherein R^{23} , R^{24} and R^{26} are all hydrogen.

36. (currently amended): The production method according to claim 1 ~~any one of claims 1 to 35~~, wherein R^{25} is trifluoromethoxy.

37. (original): A compound or a salt thereof represented by the following formula (III):



wherein R^1 and R^2 represent independently hydrogen or a protecting group for amino group (wherein R^1 and R^2 may, taken together, form a cyclic structure);

R^3 represents hydrogen or C_1 – C_6 alkyl;

R^4 represents hydrogen or C_1 – C_6 alkyl; and

R^{23} , R^{24} , R^{25} and R^{26} represent independently hydrogen, halogen, optionally halogenated C_1 – C_6 alkyl, optionally halogenated C_1 – C_6 alkoxy or hydroxyl.

38. (original): The compound or a salt thereof according to claim 37, wherein said protecting group of amino group as R^1 and R^2 is methoxycarbonyl, *t*-butoxycarbonyl, benzyloxycarbonyl, allyloxycarbonyl, formyl, acetyl, benzoyl, methyl, ethyl, allyl, benzenesulfonyl or phthaloyl,

wherein, when said protecting group for the amino group contains an aromatic ring, the aromatic ring may be substituted with one or more of nitro, amino, C₁–C₆ alkyl, C₁–C₆ alkoxy or halogen.

39. (original): The compound or a salt thereof according to claim 37, wherein either of R¹ and R² is hydrogen and the other is hydrogen, *t*-butoxycarbonyl or benzyloxycarbonyl.

40. (currently amended): The compound or a salt thereof according to claim 37~~any one of claims 37 to 39~~, wherein R³ is hydrogen.

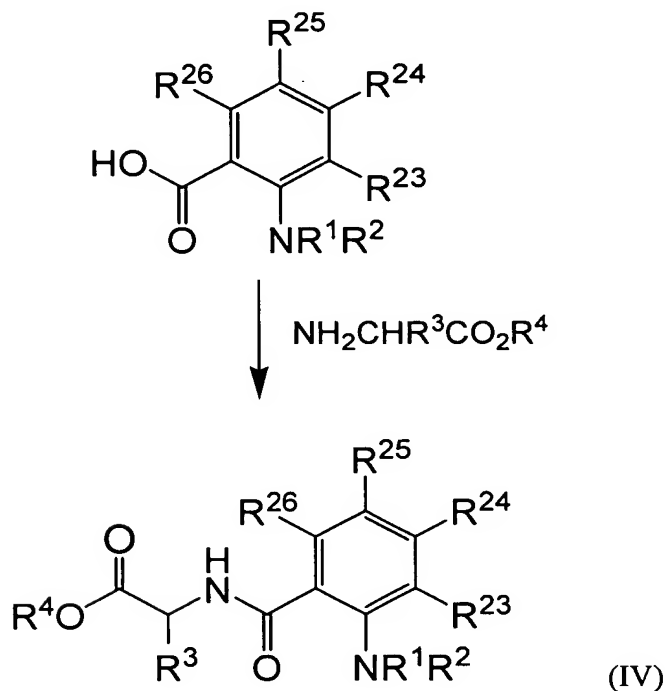
41. (currently amended): The compound or a salt thereof according to claim 37~~any one of claims 37 to 40~~, wherein R⁴ is hydrogen.

42. (currently amended): The compound or a salt thereof according to claim 37~~any one of claims 37 to 41~~, wherein R²³, R²⁴ and R²⁶ are all hydrogen.

43. (currently amended): The compound or a salt thereof according to claim 37~~any one of claims 37 to 42~~, wherein R²⁵ is C₁–C₆ alkoxy substituted with halogen.

44. (currently amended): The compound or a salt thereof according to claim 37~~any one of claims 37 to 42~~, wherein R²⁵ is trifluoromethoxy.

45. (original): A production method of an anthranilamide derivative or a salt thereof comprising a reaction step represented by the following formula (IV):



wherein:

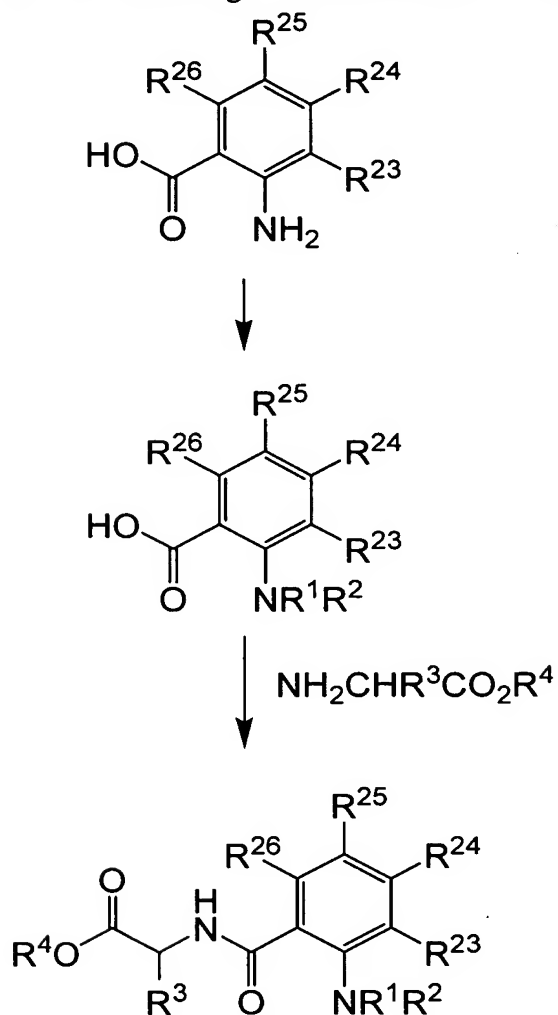
R^1 and R^2 represent independently hydrogen or a protecting group for amino group (wherein R^1 and R^2 may, taken together, form a cyclic structure);

R^3 represents hydrogen or $\text{C}_1\text{--C}_6$ alkyl;

R^4 represents hydrogen or $\text{C}_1\text{--C}_6$ alkyl;

R^{23} , R^{24} , R^{25} and R^{26} represent independently hydrogen, halogen, optionally halogenated $\text{C}_1\text{--C}_6$ alkyl, optionally halogenated $\text{C}_1\text{--C}_6$ alkoxy or hydroxyl.

46. (original): The production method according to claim 45 which further comprises a reaction step represented by the first step in the following reaction formula:



wherein R^1 , R^2 , R^3 , R^4 , R^{23} , R^{24} , R^{25} and R^{26} are as defined above.

47. (currently amended): The production method according to ~~either~~ claim 45 ~~or~~ 46, wherein the protecting group for amino group as R^1 or R^2 is methoxycarbonyl, *t*-butoxycarbonyl, benzyloxycarbonyl, allyloxycarbonyl, formyl, acetyl, benzoyl, methyl, ethyl, allyl, benzenesulfonyl or phthaloyl, wherein, when said protecting group for the amino group contains

an aromatic ring, the aromatic ring may be substituted with one or more of nitro, amino, C₁–C₆ alkyl, C₁–C₆ alkoxy or halogen.

48. (currently amended): The production method according to ~~either claim 45 or 46~~, wherein either of R¹ and R² is hydrogen and the other is hydrogen, *t*-butoxycarbonyl or benzyloxycarbonyl.

49. (currently amended): The production method according to claim 45~~any one of claims 45 to 48~~, wherein R³ is hydrogen.

50. (currently amended): The production method according to claim 45~~any one of claims 45 to 49~~, wherein R²³, R²⁴ and R²⁶ are all hydrogen.

51. (currently amended): The production method according to claim 45~~any one of claims 45 to 50~~, wherein R²⁵ is C₁–C₆ alkoxy substituted with halogen.

52. (currently amended): The production method according to claim 45~~any one of claims 45 to 50~~, wherein R²⁵ is trifluoromethoxy.